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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/378,878	08/23/1999	MARK O. WORTHINGTON	BURST-15	9605

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EXAMINER

BHATNAGAR, ANAND P

ART UNIT PAPER NUMBER

2623

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/378,878

Applicant(s)

WORTHINGTON ET AL.

Examiner

Anand Bhatnagar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74, 133-181, 186 and 187 is/are pending in the application.
- 4a) Of the above claim(s) 75-132, 182-185 and 188-206 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) 23, 27-30, 37, 58, 65, 71, 137-148, 159-173, 177 and 180 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continuation of Disposition of Claims: Claims rejected are 1-22,24-26,31-36,38-57,59-64,66-70,72-74,133-136,149-158,174-176,178,179,181,186 and 187.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C.

112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5,7,11,13,15,43,49,51, and 53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 5 and 43 recites the limitation "combining said multiple analog signals". There is insufficient antecedent basis for this limitation in the claim. The step of combining is previously performed because the one analog signal is composed of multiple analog signals (claim 4) i.e. the signal is already combined.

Claim 7 recites the limitation "quantizing each of said analog signals". There is insufficient antecedent basis for this limitation in the claim. The analog signal in claim 2 can be one signal or more than one signal while claim 7 refers to more than one signal.

Claims 11,13, 49, and 51 recite the limitation "said digital sample". There is insufficient antecedent basis for this limitation in the claim.

Claims 15 and 53 recites the limitation "at least two of said cluster data features". There is insufficient antecedent basis for this limitation in the claim. Previously only one cluster of data features was established and claim 15 is referring to two or more cluster data features.

These claims, as well as all dependent claims from these claims above, will be addressed as best understood by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-4,9-22,24-26,31-36, 38-42,47-57,59-64,66,67,74,133,149-151,157,158,179,181,186, and 187 are rejected under 35 U.S.C. 102(e) as being anticipated by Gordon (U.S. patent 6,327,031).

Regarding claims 1 and 186: Gordon discloses a method for analyzing data acquired by reading an optical disc having at least one readable analyte specific signal element, said method comprising identifying a pattern in said data that reports a physical property of said at least one readable analyte-specific signal element (col. 2 lines 18-40 and 65-67, where a sample "analyte" is attached to a surface of a optical disc and its optical properties "physical property" is determined).

As for the limitation of a computer in claim 186 (fig. 6 element 41).

Regarding claim 39: It is rejected for the same reason as claim 1 above.

As for the limitation of a plurality of nonidentical analyte specific signal elements (col. 2 lines 25-31; where Gordon discloses that the sample can be a myriad of biological, chemical, or biochemical samples. It is inherent that it may be one type of sample "analyte" or can be a combination of nonidentical samples "analytes").

Regarding claims 133 and 187: A method for analyzing data comprising: retrieving said data acquired from a trackable optical disc with concurrently readable analyte-specific signal elements (col. 2 lines 30-42; where the beam is directed on the specimen and the optical data collected

"retrieved" and analyzed followed by the outputting of the data that was generated by the radiation beam).

As for the limitation of a computer in claim 187 (fig. 6 element 41).

Regarding claims 2 and 40: The method wherein said data are a digitized sample of at least one analog signal (col. 6 lines 15-20, where the analog signal can stay in the analog mode or be converted to digital samples).

Regarding claims 3 and 41: The method wherein said at least one analog signal is derived from a signal selected from a group consisting of a high frequency signal, a tracking error signal, a focus error signal, and any combination thereof (col. 2 lines 20-26 and 38-42, where the light/radiation is detected which is a high frequency analog signal).

Regarding claims 4 and 42: The method wherein said at least one analog signal comprises multiple analog signals.

Gordon et al. discloses to analyze the optical properties of a analyte attached to an optical disc. It is inherent that light is an analog signal composed of different analog components (ex. RGB, YcrCb, etc.).

Regarding claims 9 and 47: The method of claim 2 wherein said digital sample was acquired in a substantially continuous manner (col. 6 lines 15-20, where the analog signal is continuous).

Regarding claims 10 and 48: The method wherein said digital sample was acquired in a substantially noncontinuous manner (col. 6 lines 17-21, where the sampling rate is changed, i.e. makes the data

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noncontinuous because samples are taken and not the whole data, to make the data fit in memory).

Regarding claims 11 and 49: The method wherein said pattern is substantially continuous within said digital sample (col. 6 lines 15-20 where a continuous signal is obtained).

Regarding claims 12 and 50: The method wherein said substantially continuous pattern corresponds to a length along a track in a radial direction.

It is rejected for the combination of reasons of claim 1 and 11, where the data obtained is from a substance attached to the tracks of an optical disc.

Regarding claims 13 and 51: The method wherein said pattern is substantially discontinuous within said digital sample.

It is rejected for the same reason as claim 10 above. By setting a sampling rate the complete data is not obtained making in noncontinuous because discrete digital samples are obtained.

Regarding claims 14 and 52: The method wherein said discontinuous pattern corresponds to a cluster of data features (col. 2 lines 65-67 and col. 3 lines 2-8, where the optical properties "cluster of data features" are obtained of the sample).

Regarding claims 15 and 53: The method wherein at least two of said cluster data features correspond to different analyte-specific signal elements positioned along different turns of said disc.

It is rejected for the combination of claims 12 and 39.

Regarding claims 16 and 54: The method wherein said discontinuous pattern includes multiple data features that correspond to said at least one readable analyte-specific signal element.

It is rejected for the same reason as claim 13 above. Where discrete digital samples "multiple data features" are taken due to the sampling rate.

Regarding claim 17: The method wherein said discontinuous pattern comprises at least one discontinuity between two continuous regions, and wherein said discontinuity itself reports a physical property of said at least one readable analyte-specific signal element (fig. 6 elements 44,50,and 51, col. 6 lines 10-28, and col. 9 lines 25-43, where data is taken of the samples on the disc and the discontinuity regions are the areas between the samples "continuous regions").

Regarding claim 18: The method of claim 17 wherein said discontinuity indicates that said continuous regions correspond to structures that are substantially tangentially located with respect to one another (fig. 6 elements 44,50,and 51, col. 6 lines 10-28, and col. 9 lines 25-43, where the samples are in different tracks/wells on the same circumferential track as well as on different circumferential tracks/wells, the discontinuity regions are on the same track as well as tangentially to each other on the different circumferential tracks).

Regarding claim 19: The method wherein said discontinuity indicates that said continuous regions correspond to structures on the same turn of a track.

It is rejected for the same reason as claim 18 above. There are continuous regions and discontinuous regions on each track that the samples are placed on. There are more than one sample placed on the tracks i.e. more than one continuous region on the track.

Regarding claim 20: The method of claim 17 wherein said discontinuity indicates that said continuous regions correspond to structures on different turns of said disc.

It is rejected for the same reason as claim 19 above.

Regarding claim 21: The method wherein said identifying comprises associating result objects that correspond to said data features (fig. 6 elements 44,50,and 51, col. 2 lines 65-67, col. 6 lines 10-28, and col. 9 lines 25-43, where the sample is identified by its obtained optical properties).

Regarding claim 22: The method wherein said reported physical property is a property disposed tangentially on said disc.

It is rejected for the combined reasons of claims 1 and 18.

Regarding claim 24: The method wherein said reported physical property inheres in said at least one readable analyte-specific signal element.

It is rejected for the same reason as claim 1. Every sample has an inherent optical property.

Regarding claims 25,36,55 and 64: The method wherein said reported physical property is independent of an absolute position of said pattern in said data.

It is rejected for the same reason as claim 1. Gordon discloses to obtain the optical properties of a sample(s) which are attached to an optical disc. This type of physical property is independent of the position of the sample.

Regarding claims 26 and 56: The method wherein said at least one readable analyte-specific signal element produces an analog signal that has a substantial magnitude in only one turn of a disc (fig. 6 elements 44,50, and 51, col. 6 lines 10-28, and col. 9 lines 25-43, where the samples are in different tracks/wells on the same circumferential track as well as on different circumferential tracks/wells, inherently the samples can be placed on one track or more than one track depending on the quantity of results required. If only one track is used than signal is only in one track/turn of the disc).

Regarding claims 31,57, and 66: The method wherein said identifying comprises identifying a plurality of readable analyte-specific signal elements said method further comprising counting said plurality of readable analyte-specific signal elements (col. 3 lines 9-15, where the samples are quantified "counted").

Regarding claims 32 and 61: The method wherein said physical property depends at least in part upon disposition of said at least one readable analyte-specific signal element on said disc (fig. 6 elements 44,50,and 51, col. 6 lines 10-28, and col. 9 lines 25-43, where the samples are in different tracks/wells on the same circumferential track as well as on different circumferential tracks/wells, the properties depend on how the samples are oriented "the disposition" on the optical disc, i.e. not considered as the positions of the samples).

Regarding claims 33 and 62: The method wherein said physical property depends on an optical interaction between a laser beam, said at least one readable analyte-specific signal element, and the disc (col. 3 lines 18-40, where the results are gathered of the light beam that interacts with the substrate, a layer of the disc, and the sample).

Regarding claims 34 and 63: The method wherein said at least one readable analytes-pecific signal element is a translucent bead and said optical interaction is a lensing effect of said bead (fig. 6 elements 44,50, and 51, and col. 6 lines 25-50; where the wells, into which the samples are filled by microtitration, resulting in microsamples "beads" and induced by light to determine the reflective property "lensing effect" of the sample).

Regarding claim 35: The method wherein said physical property is an ability of said bead to focus the laser beam near a groove of said disc (col. 6 lines 10-25 and 43-55, where the light beam is directed in tracks of a optical disc).

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Regarding claims 38,74, and 181: The method wherein said trackable optical disc includes at least one spiral track (col. 6 lines 10-25 and 43-55, where the light beam is directed in tracks of a optical disc).

Regarding claim 59: The method wherein said at least one class of analyte-specific signal elements produces an analog signal that has a substantial magnitude in two or more different turns of a track.

It is rejected for the combination of claims 18 and 26 above.

Regarding claim 60: The method wherein said identifying comprises using relative positions of the patterns on the disc.

It is rejected for the same reason as claim 32 above. Where the disposition is taken as the relative position of the sample "pattern".

Regarding claim 67: The method further comprising outputting a report that includes results of said identifying.

It is rejected for the same reason as claim 39 where the results are outputted.

Regarding claims 149,150 and 157: Gordon does not teach to use filtering to reduce the amount of data. It is a well known concept to use a filtering to reduce data by eliminating unwanted noise or other unwanted frequency signals. Examiner takes Official Notice.

Regarding claim 151: The method further comprising acquiring said data using an optical-disc reader.

It is rejected for the same reason as claim 133 above.

Regarding claim 158: The method wherein said analyzing comprises processing one or more data records.

It is rejected for the same reason as claim 133 above. Where more than one data is obtained.

Regarding claim 179: The method wherein any of said retrieving, analyzing, generating, and outputting can be performed iteratively.

It is rejected for the same reason as claim 39 above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8 and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (U.S. patent 6,327,031) in view of Oguro (U.S. patent 6,344,939 B2).

Regarding claims 5 and 43: The method further comprising:
combining said multiple analog signals to form a combined analog signal;
and quantizing said combined analog signal to form said data.

Gordon et al. discloses to obtain optical properties of a sample attached to an optical disc. The light/radiation values obtained of the sample are a single analog signal with multiple analog components.

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Gordon et al. does not teach to quantize this combined analog signal.

Oguro teaches to quantize a combined analog signal (Oguro; fig. 22b elements 8a-8c, 9, 10, and 14, col. 4 lines 45-52, col. 9 lines 53-67, and col. 10 lines 1-25, where different analog signals are combined and then quantized). It would have been obvious to one skilled in the art to combine Oguro to Gordon et al. because they are analogous in analog and digital signal manipulation from recording mediums. One would have been motivated to incorporate the quantizer of Oguro and incorporate it into the system of Gordon et al. to quantize the analog light signal to create data steps to limit the data size which makes it more efficient for storage.

Regarding claims 6 and 44: Orguro further teaches a method wherein said combining said analog signals comprises combining said analog signals in a synchronized manner (Orguro; fig. 22b element 28 and col. 11 lines 33-40, where the microcomputer controls and synchronizes the signals.

Regarding claims 7 and 45: The method of claim 2 further comprising: quantizing each of said analog signals to form individual digitized data sets

combining said individual digitized data sets to form said data.

It is rejected for the same reason as claims 5 and 6 above. As for the following limitation of combining the data sets (Orguro; col. 10 lines 5-15, where the data is placed into blocks).

Regarding claims 8 and 46: The method wherein said combining said data sets comprises combining in a synchronized manner.

It is rejected for the same reason as claim 6 and 44 above.

4. Claims 68-70, 72, 73 and 178 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (U.S. patent 6,327,031) in view of Maruyama et al. (U.S. patent 6,453,119 B1).

Regarding claims 68-70:

Gordon et al. discloses a sample analysis system where a sample is attached to a optical disc. Gordon does not disclose to visually display the results on an electronic display nor on a tangible medium. Maruyama et al. teaches to display the analysis from an optical disc on a electronic display as well as on a tangible medium (printer) (Maruyama et al. fig.19 elements 48, P1, and P2). It would have been obvious to one skilled in the art to combine Maruyama et al. to Gordon et al. because they are analogous in analysis of an optical recording medium. One would have been motivated to incorporate the display and printer of Maruyama et al. into the system of Gordon et al. to have the ability to see the results of the analysis either on a display, paper, or both.

Regarding claim 72: The method wherein said outputting comprises transmitting said report remotely (Maruyama et al. fig.19 elements 48, P1, and P2, where the results are transmitted to the display and printer).

Regarding claim 73: The method wherein said outputting comprises storing said report in a manner selected from a group comprising transient storing and permanent storing (Maruyama et al.; fig. 19 element 30 where the results are stored in a memory).

Regarding claim 178: The method wherein said outputting is selected from a group consisting of storing, displaying, and printing.

It is rejected for the combination of claims 68-73.

5. Claims 134-136 and 174-176 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (U.S. patent 6,327,031) in view of Ota et al. (U.S. patent 5,920,529).

Regarding claim 134-136 and 174-176: Gordon et al. discloses an optical disc analysis system, of a sample attached on the disc. Gordon et al. does not teach to initialize a parameter before analyzing data. Ota et al. teaches to initialize a memory parameter before analyzing the data from a recording medium (Ota et al.; fig. 1 elements 3,4, and 5, col. 6 lines 55-67 and col. 7 lines 1-5, where the information is first placed in memory "initialized" followed by data analysis). It would have been obvious to one skilled in the art to combine Ota et al. to Gordon et al. because they are analogous in data analysis from a recording medium. One in the art would have been motivated to incorporate the memory initialization and storing of data of Ota et al. to the system of Gordon et al. in order to preserve

the data if the analysis, of the same data, will need to be performed another time.

Regarding claim 136: As for the limitation of the default value of the memory: (Ota. et al. col. 7 lines 60-67 and col. 8 lines 1-7, where the address of the data is registered and updated as the data changes. If no data is present then obviously the register is going to have a default value of zero).

6. Claims 152-156 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (U.S. patent 6,327,031) in view of Ando et al. (U.S. patent 56,505,964).

Regarding claims 152-156: Gordon et al. discloses an optical disc analysis system, of a sample attached on the disc. Gordon et al. does not disclose to have a start and end markers as well as logical and physical markers. Ando et al. teaches to have a lead in area (start marker), a lead out area (stop area), logical sector, and data sector (physical marker) (Ando et al. fig. 1, col. 7 lines 32-44). It would have been obvious to one skilled in the art to combine Ando et al. to that of Gordon et al. because they are analogous in optical disc analysis. One in the art would have been motivated to incorporate these features of Ando et al. into Gordon et al. in order to synchronize the system of when to start/stop and to show the position of the data on the disc.

Allowable Subject Matter

7. Claims 23,27-30,37,58,65,71,137-148,159-173,177, and 180 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takahashi et al.(U.S. patent 6,449,423) for a optical disc playback.

Aria et al. (U.S. patent 6,496,647) for combining and separating analog and digital signals.

9. Any inquiry into this communication should be directed to Anand Bhatnagar whose telephone number is 703-306-5914, whose supervisor is

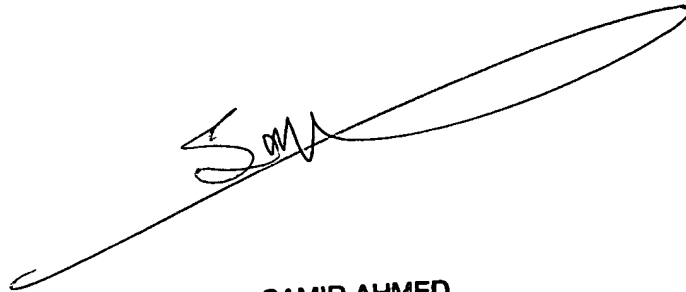
Amelia Au whose number is 703-308-6604, group receptionist is 703-305-4700, and group fax is 703-872-9314.

AB

Anand Bhatnagar

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February 10, 2003

A handwritten signature in black ink, appearing to read 'Samir', with a long, sweeping horizontal stroke extending to the right.

**SAMIR AHMED
PRIMARY EXAMINER**